22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

white cowry, *Ovulum ovum*, and a smaller one of the same family, the *Ovulum verrucosum* of conchologists. The former is employed in decorating the prows of canoes, and also the projecting ends of the outer ridge-pole of houses. The latter are strung into armlets or necklaces. All the other representatives of the cowry family, though numerous, are also found in abundance, but are not devoted to any useful purposes.

There are several extensive beds of the pearl oyster; but these have never been cultivated, nor has any pearl fishery been established. The natives do not obtain the oyster for the sake of the pearls; but merely as an edible. These, however, are frequently met with, and are usually of good quality and lustre. We have ourselves taken as many as seventeen pearls, three of which were of moderate size, out of one small oyster. There is no doubt but that, with proper attention, these pearl oyster beds would prove a valuable source of revenue to the people. The largest of the shells are cut up, and ingeniously fashioned into a great variety of native fishing-hooks; while in other cases the shell is highly polished, and worn as a breastplate.

The trumpet shell, (*Triton variegatus*,) is, as the name indicates, made by the natives into horns or trumpets. These are used chiefly in canoes, when voyaging, to give warning of their departure or arrival. The only preparation of the shell consists in drilling a small hole through the spiral end. The sound of a good one may be heard at a distance of several miles. In the event of a sudden squall, driving any small fishing canoes far away from the land, it is usual for the friends of the missing ones to man several canoes, and to start

49: Rogers A-4,5 (no date) 1969 OU9 Tonga OU9

GARTH ROGERS

Systematic development of agricultural resources was the prime concern of Tonga's first development plan (1965–1970), the main effort and spending being allocated to a comprehensive Coconut Replanting Scheme. Banana exports to New Zealand and Japan have fluctuated although they have gradually increased throughout the 1960s. But other agricultural exports—such as watermelons, fungus, groundnuts, pineapples, vegetables and ginger—comprise only a very small fraction of the total exports. Other crops are either completely absorbed by home consumption or are, as yet, only in an experimental stage.

A fishing industry has been established in Nuku'alofa with the aid of Japanese experts but in 1968 it was barely supplying the home market. Local private fishermen would sell a string of small fresh fish, in all about three to four pounds, for about fifty *seniti* (NZ50c). Fish was sold in the government market at intervals of about two weeks but the supply rarely lasted more than one day. Tuna and shark caught by the government vessel were refrigerated in the government market and sold for ten and four *seniti* per pound respectively. Labourers' wages at that time in Nuku'alofa were one *pa'anga* (100 *seniti*) per day. By early 1969 small shipments of crayfish tails were being transhipped to the United States via Fiji by an Australian fisherman who owned his own craft but employed local Ha'apai labour.

* * *

A very high proportion (75.57% or 57,526) of the total Tongan population was classified in the 1966 census as "economically inactive", that is, as persons not engaged in any form of "industry" ranging from subsistence agriculture to public service. Included in this category were 16,308 or 81.3% of all adult Tongan women who were engaged in "home duties", all children under fifteen years of age, and all who were students over fifteen years or retired. It should be understood, however, that women perform some important economic tasks such as assistance with food-gathering and copra-making. Moreover, according to the traditional division of labour in Tonga, women make mats, baskets and bark-cloth as part of their "home duties". Nevertheless, only 1,013 or 5.0% of adult Tongan women were engaged in activities other than these.[7] No Tongan women were listed as employed in "government and administration" (excluding government clerks); 607 or 3.02% of all adult Tongan women (compared with 1,715 Tongan males) were listed as employed in "services" (religious, educational, medical, personal; not transport); 173 or 0.86% (compared with 180 Tongan males) in "commerce"; and only 18 or 0.089% (compared with 579 Tongan males) in "part-manufacturing and processing" industries.[8] In Tonga, the traditional idea and practice that man is the provider and head of the household still persists.

7. TONGA, 1968: Table 12b, 72-74.
8. In 1961, 9.5% of all adult Western Samoan women were classified as "economically active" (excluding "village agriculture"); 7.9% of all adult women, mainly the 15-29 age-group, were engaged in "industry" of one sort or another. The 1966 Cook Island census (pp. 5, 55) lists 1,620 adult Cook Island women or 35.4% of all adult females as "economically active" of whom 1,032 resided in Rarotonga. Cook Island women engaged in manufacturing numbered 301 (compared with

137 guajava and Paspalum conjugatum have become naturalized and
311 constitute dominant species. The areas in which this
association occurs have no agricultural potential, unless
[229] reclaimed. Such lands are presently being developed as
fish ponds.

137 Mangrove Swamp
311

Zones of mangrove swamp are found along the sheltered margins of the north coast, extending from Kolovai in the west to Navutoka in the east, and including areas surrounding Nuku'alofa and the interior lagoon. This association
137 consists of trees actually growing in salt or brackish
[133] water on a muddy substratum below the limits of high tide. Although it merges on its inner margins with representatives of the swamp forest association, the mangrove swamp is generally lower and more gregarious, composed largely of only Rhizophora mangle, Rhizophora mucronata, and
311 Bruguiera conjugata. These areas have little or no agri-
313 cultural potential unless reclaimed, although valuable dyes, timber, and firewood are obtained from the mangrove species. A number of bush allotments have sections of mangrove swamp and, with the shortage of timber trees, these swamps have become the major source of firewood on the island.

137 Tropical Lowland Forest
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Presumably the entire well-drained central upland was originally covered with dense tropical lowland forest. Today, however, there are only remnants of primary forest.

121 a simple, stable base advancing through strata which becomes progressively more complex.

457 For Tonga, and indeed for other Pacific
179 Islands, tourism should develop in conjunction with—and perhaps only after—several basic components of the economy have been stabilized. After this, an organized tourist-oriented infrastructure must be developed including trained individuals and increased and improved transport. Tongans have gradually developed both facets of the economy, although more may be necessary.[10] A

Too many tourists in Tonga could "drain" the carrying capacity of the land (as well as the patience of the Tongans). Basic food-producing industries of the Kingdom must be further improved. For example, in
[439] 1974 Tongans imported 560 tons of frozen fish, while
[228] the Tongan Government fishing vessel caught only 66 tons, roughly a ration of eight to one. In an attempt to
457 solve this, the Tongan government is encouraging loans
179 to improve the fishing industry. In addition, a three-
228 year program funded by the United Nations Develop-
648 ment Programme (UNDP) is aimed at developing the local fishing industry. The UNDP will provide Tongans with some $230,000 as well as technical and managerial assistants to work with the fishermen.

457 The UNDP (along with the International
648 Labor Organization) has also provided Tonga with basic aid toward improving the tourist infrastructure: a three-month course in tourism began late in 1974 and ended in January of 1975. Over one hundred Tongans took part in the training session. Another upgrading course started in February, 1976.

167 Development of tourism design must go
464 hand in hand with other aspects of Tongan life: more must be done to encourage the emigrating Tongans to
[459] stay in the Kingdom. Population pressure, high unem-
[197] ployment, the increasing influence of Western values, and the availability of relatively well-paid work in New Zealand compel many young Tongans to leave Tonga.
167 This movement of Tongans overseas markedly affects
464 the Tongan economy, as recent trends make clear: pri-
179 vate and government building in Tonga has fallen behind as a result of lack of skilled workers, and equipment is lying unused. One government building project lost two-thirds of its staff. What is true for the construction trade
167 is also true for the private farmer:
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> If the drain of laborers to New Zealand goes unchecked, a crisis could develop in Tonga's agriculture. This warning is sounded by the Director of Agriculture, Mr. Tomasi Simiki, who said this week the migration of workers to New Zealand—even temporarily—was already being felt in farming. Farmers are producing less because they

[p. 91-A]

A. [For footnote, see p. 93-A--Analyst]
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101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

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443 month. On the other hand, some farmers market their produce only monthly or occasionally during the year, depending upon when a cash 443 need arises. A third type of seller is the craftsman who produces 439 items of quality specifically for the tourist trade (i.e., handicrafts of wood, shell or tortoise shell) and markets these goods only when a tourist ship or plane has brought passengers from Fiji or Samoa. Thus, the craftsman's sales are largely independent of the needs of native Tongans. The prevalence of this type of producer is expected to increase, as tourism develops within Tonga.

443 A variety of baked goods may also be found in the market 438 on Saturday. Though largely devoid of flavor and extremely heavy [262] in texture, Tongan "cakes" are popular and sell rapidly. An excellent market also exists for peanuts. Supply rarely is adequate to meet demand. The sale of kava (from which "Tongan beer" is made) is also brisk. Kava is lightweight and easily transportable. Producers on Ha'apai, Vava'u and many of the isolated islands often send kava to Nuku'alofa for sale.

[655] The major competitor to the open-air market is the Vuna Government Market, which handles the majority of fish and meat sales to Nuku'alofa and surrounding Tongatapu. Many of the local stores are also beginning to sell fresh meat products. Consequently, the amount of meat sold in the market fell from 160,771 pounds in 1971, 443 to 94,684 pounds in 1973. The sale of fresh fish in the market 438 rose during the same period, mainly due to the operation of a gov- 655 ernment fishing vessel which had a total catch of 203,243 pounds in 228 1973 (Report of the Minister of Agriculture 1973, p. 24).

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

Fishing activity is often not considered part of the agricultural sector of an economy. However, in Tonga fishing represents a significant cash input to the local agricultural base. Of the total survey sample, over 15 percent of those questioned indicated that they derived some part of the household cash income from fishing. The Tongan government obviously considers fishing to be of significant value to the national economy, in that it includes evaluations of fishing catch and sale within the annual reports, and operates one major fishing vessel, the Ekiaki. This ship is of modern construction and contains some refrigeration and pre-processing facilities. In 1973, the Ekiaki landed a total of 203,243 pounds of fish, representing a catch percentage (catch per 100 hooks) slightly better than Korean and Chinese operations in the region. This total catch was smaller than anticipated, due to mechanical breakdowns and the lack of trained operation personnel.

Tongan waters are a largely untapped source of food, including such fish species as tuna, bill-fish, and shark (Report of the Minister of Agriculture 1973, p. 30). In 1973, sale of fish through the Vuna market equaled over $15,000, or 120,000 pounds. However, demand for fish in Nuku'alofa far excelled this amount. Personal observations evidenced that on those days when fish is to be sold, crowds of consumers wait hours before the market opens.

Despite the fact that domestic demand for fish is unsaturated, 40 percent of the Ekiaki's total catch, for the year 1973, was

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

228 439 434 000 sent to canneries in Pago-Pago.[1] A recent Japanese survey, which mapped the most productive Tongan fishing grounds, suggested that up to 90 percent of the potential catch could be exported to Japan (Kyokuyo, Hogai Co. Ltd. 1965, p. 2). In view of the domestic demand for fish products, plus the nutritional status of many urban Tongan inhabitants (to be discussed in the following chapters), such exportation would be totally irresponsible to the needs of the Tongan people.

226 434 228 Small scale, private household fishing activity has done little to meet domestic demand. Survey responses indicated that the lack of investment capital for necessary fishing equipment is the major obstacle to expansion of private fishing enterprises. 228 227 439 651 Discussion of this problem with part-time and full-time fishermen revealed that not only is the basic cost of equipment prohibitive, but a 33 percent import tax, charged by the government for such items (i.e., nets, lines and hooks) makes purchase impossible for 228 655 the average Tongan. While this situation insures the governmental monopoly on commercial fishing, it hinders the expansion of fishing activities necessary for meeting the domestic demand for fish products.

228 Another major obstacle to the expansion of fishing activities in Tonga is the general lack of preservation and holding [655] facilities throughout the islands. Again, the only adequate

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[1] Ironically, much of this same catch is processed in canneries and resold as tinned fish products to Tonga at a sizable increase in price.

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

228 [655] facilities are governmentally controlled. Thus, most fishermen catch only that which will satisfy family needs, plus a small quantity for immediate sale.

434 Data determining income levels from all types of cash food production (including fishing) was collected during household surveys.[1] Range of income was from zero to $1,200 per year, with a mean of $480 per year for those farmers selling produce. Sale of copra results in the largest cash income, with vegetables (all types) second and bananas third.[2]

434 178 During survey discussions concerning income, it became apparent that cash incomes have increased substantially over the past several years. As a result, Tongan farmers are enjoying an increase in purchasing power, reflected in the purchase of non-traditional items, such as imported foodstuffs or the purchase of [439] [262] food items from local producers. However, while few farmers are totally dependent upon this new cash-based living, the significant increase in the use of canned goods, sugar, bread and assorted imports is an obvious indication of the direction of this trend.

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[128] [1]The average Tongan farmer keeps no record of his yearly or monthly earnings and survey information probably reflects mere estimations. In addition, in several instances, it was apparent that income levels were being exaggerated or minimized for one or more reasons. Although obviously skewed data was excluded from survey data compilation, it is reasonable to assume a margin of error still exists. For this reason, only range and mean of income are used, in an attempt to minimize the effects of misleading data.

[2]The other major contributors to the household cash income include the sale of handicrafts, plus income derived from relatives or overseas sources.